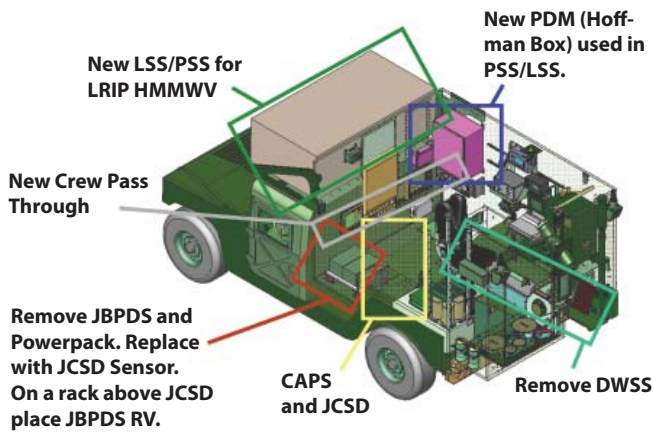
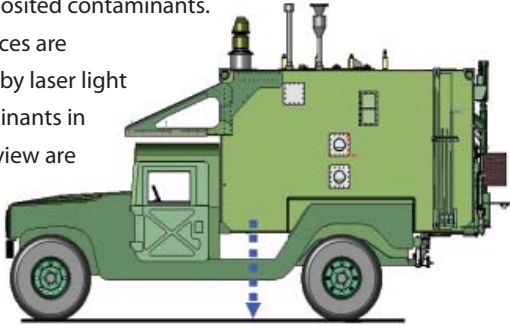




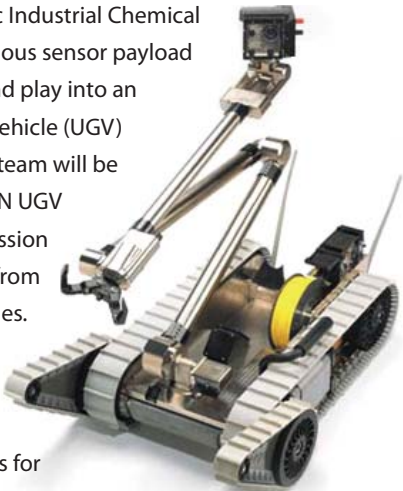
CUGR ACTD Solution:

The CUGR ACTD will have two technology thrust areas: one to improve the speed and capability of manned NBC reconnaissance vehicles and one to expand the NBC reconnaissance capability in restricted terrain.

Thrust Area 1 will use the Joint Chemical Surface Detector (JCSD) to improve the speed of NBC reconnaissance. The JCSD uses UVRSD technology to detect and identify surface-deposited contaminants. Target surfaces are illuminated by laser light and contaminants in the field of view are identified through analysis of their backscatter or Raman signal against a wide library of Raman spectra. The ACTD will replace the DWSS with the JCSD in the Joint Service Lightweight NBC Reconnaissance System (JSLNBCRS) HMMWV variant.



Thrust Area 2 will integrate chemical, radiological and Toxic Industrial Chemical (TIC) sensors into various sensor payload modules that plug and play into an Unmanned Ground Vehicle (UGV) platform. The survey team will be able to tailor the CBRN UGV (CUGV) to specific mission profiles by selecting from various sensor modules. The CUGV will also be capable of collecting biological and chemical samples for further analysis. The survey team can remotely operate the CBRN Unmanned Ground Reconnaissance Vehicle (CUGV) from within the NBC Reconnaissance Vehicle or from a dismounted position.



Future Applications:

The CUGR ACTD technology may have application and integration opportunities on both the JSLNBCRS LAV variant and Stryker NBC Reconnaissance Vehicle. The CUGR ACTD will also enhance capabilities of and facilitate the utility of the Future Combat System (FCS) UGV program through the demonstration of NBC operational missions not currently available. The resultant JCSD and CUGV systems will address the acquisition goals of the Joint Program Executive Office Chemical Biological Defense (JPEO CBD).

## Introduction:

Current Nuclear, Biological and Chemical (NBC) reconnaissance systems use a Double Wheel Sampling System (DWSS) and a Chemical-Biological Mass Spectrometer (CBMS) to detect surface contamination.

The CUGR ACTD proposes to use a non-surface contacting detection technology called UV Raman Surface Detection (UVRSD), which will speed up detection times. The CUGR ACTD will also add the option of using a robotic platform in limited access areas for chemical detection and sample collection.

The Joint Requirements Office for Chemical, Biological, Radiological and Nuclear Defense (JRO-CBRND) recognizes this CUGR ACTD has the ability to enhance current NBC reconnaissance.



# CUGR ACTD

Executive Oversight is provided by OSD's Advanced Systems and Concepts office with daily management executed by the Joint Science and Technology Office for Chemical and Biological Defense.

Joint Requirements Office for Chemical Biological Radiological Nuclear Defense

Joint Program Executive Office for Chemical and Biological Defense

**Sponsor and OM:** US Pacific Command executed by US Army Pacific

**TM:** US Army Edgewood Chemical Biological Center

**XM:** Joint Program Manager for NBC Contamination Avoidance



**Chemical, Biological,  
Radiological and Nuclear  
(CBRN)**

**Unmanned Ground  
Reconnaissance  
(CUGR)**

**Advanced Concept  
Technology Demonstration  
(ACTD)**